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product from the other, except by the patterns which have been identified. Indeed the Bennett glazes were fully equal to the Bennington in brilliancy and lusciousness and frequently surpassed the latter in these qualities. It is now known that many objects heretofore attributed to the Bennington works were in reality made in Baltimore.

In the little group of Edwin Bennett's pottery, recently installed next to the Bennington collection, are two large ale pitchers, one with hunting scenes on the sides, the other with figures of storks standing amid reeds. Each of these has a closed spout perforated with small holes at the end and connected with the base of the interior by a tube, for the purpose of separating the froth from the liquor when being poured out.

In 1852 the "Rebekah at the Well" teapot was first produced at the Bennett works, and this became so popular that it was copied by nearly every important pottery in the country and is still being made. The design was an adaptation of a Staffordshire pattern of a few years earlier. One of the earlier examples, with reliefs covered with green glaze, on a reddish-brown ground, is here shown. The teapot with rose-bud decoration in relief was evidently taken from an earlier model used at the Jersey City Pottery.

Edwin Bennett also made a game pitcher with hound handle, decorated on one side by the figure of a hunter with his dog, and on the other with a tree and birds. The most important pieces in the group, however, are a gigantic pitcher of the Bennington type, composed of eight guttered sides with polychrome mottling, and an enormous jardiniere with relief ornamentation of grapes and vines. The glazes on all of these are exceedingly heavy, rich and mellow.

E. A. B.



### BOWL OF ROMAN MADREPORE GLASS

The dealer of whom the little bowl which now interests us was purchased, says that its immediate provenance was Hebron, Syria. Indeed, there and in the vicinity glass is still manufactured by primitive processes. Some specimens have found their way into Egyptian collections of antiquities, so closely do they resemble ancient wares. Here, therefore, we have an industry that has survived from very ancient times.

The Romans learned the art of glass-making from the Alexandrians. Cicero speaks of glass as merchandise from Egypt brought over together with paper and linen. On the other hand, Strabo, writing under Augustus, says that "every day at Rome some new processes for coloring were invented, so that a successful imitation of crystal may now be made so cheaply that a drinking glass with its stand can be sold for a copper coin" (XVI, 25).

In the first century B. C. glass was a new industry in Italy that was feeling its way. There were no ancient Hellenic traditions on the subject and thus it came to pass that the art became essentially known as Roman. This genesis probably must account for the paucity of details found in Roman literature—for instance, in Pliny's account. There were no Greek authorities to fall back upon.

Roman glass was manufactured for a period of about four hundred years, at one time or another at nearly every point of the Empire, from Syria to Spain and to Britain. It has been found even in tombs of northern tribes never subdued by Roman armies, such as in Denmark and Sweden. There is scarcely one application of glass known in Europe in the eighteenth century that **was** not known to the Romans; and the latter knew and were masters of the decorative processes, although they did not produce the beautiful translucent **ruby** glass that is one of the glories of European mediæval art.



ROMAN MADREPORE GLASS BOWL

Froehner in his catalogue of the Charvet collection divided Roman glass into fifteen classes; but these are arbitrary divisions and he and others have failed in any attempt at geographical classification. One division, however, which, by the way, can hardly be called Roman, as it is a development of the "fused mosaic" glass of the ancient Egyptians worked out on a large scale and used for objects other than flat slabs and fragments for inlay, is the "millefiori" found in Rome and in the tombs of Central and Southern Italy. It forms a transition from the primitive Egyptian form to the true blown glass of imperial Rome. Many specimens of this beautiful glass are to be seen in the fine collection of 1600 fragments in the Pennsylvania Museum, made by Dr.

Robert H. Lamborn.<sup>1</sup> There are different types—one is the madrepora (or coralline), white rolls set in translucent green or purple, to which our specimen belongs—exceptional is the style of the bowl from Crete in the British Museum, which is opaque rich blue with yellow, red and green rosettes. Another style is short rolled scrolls of opaque white, in a more or less translucent ground, interspersed with a few quadrangular masses of gilt glass, probably in imitation of some fossiliferous lumachella marble at some time in vogue in Alexandria.

These bowls are built up of more or less spirally arranged fragments of glass mosaic, the pieces having been cut from a cane of glass, itself formed of minute rods as in the case of Egyptian "fused mosaics." These pieces are arranged in a mould in a coil starting from the center, but how far if at all during the subsequent partial fusion they were subjected to any blowing operation is a disputed point. In any case the final effect is the result of an elaborate process of cutting on the wheel and subsequent polishing. The pieces are arranged with studied irregularity to mask the spiral arrangement, and variety is obtained by oblique setting to the surface. It is only seldom, if ever, that any trace of distortion occurs, which would be caused by the blowing tube. Some are so disposed as to imitate endless varieties of agathe or of breccia. One variety imitates amethyst quartz; but here as elsewhere rich combinations of color quite unnatural are introduced. Meandering bands of emerald green, powdered with gold, divided with lines of white and blue appear on an alabastron from Sidon. Of this peacock fashion examples appear in the collections of the British Museum, the South Kensington Museum, and Gréau, the latter of which the late J. P. Morgan bought en bloc. In the Gregoriano Museum (Greg. XVI) in the Vatican are a series of bowls from Greek and Etruscan tombs; a large one also may be studied in the Industrial Museum of Vienna, and the Charvet collection in America (Metropolitan Museum).<sup>2</sup> In one case there is an approach to the Champlevé enamel process, only with glass base instead of enamel. Some rare examples show a ribbon of gold around the design, suggesting the cloisonné enamels of Byzantine jewelry. In some fragments in the Pennsylvania Museum the mosaic work runs through the thickness of the glass. The Romans colored with iron, copper, manganese and antimony oxides, as did the Egyptians; to those ancient materials they added cobalt. As already mentioned, they had no translucent ruby red. This, derived from gold or copper oxide, became known to alchemists of mediæval times. No example exists of classic days. Hyacinth and sard, honey or brownish tints were the nearest approach to it. Opaque red glass obtained from oxide of copper and some oxide of tin was prized by the Romans.

In the present bowl the madrepora or coralline rolls are imbedded in translucent purple ground shading in places to translucent green.

Taken in connection with the fine and extensive collection of fragments bequeathed by Dr. Robert H. Lamborn to the Pennsylvania Museum, the present acquisition is of serious educational value as an entire specimen of this interesting industry.

S. Y. S.

<sup>1</sup> See BULLETIN OF THE PENNSYLVANIA MUSEUM, April, 1908, p. 17.

<sup>2</sup> See "Glass," by Edward Dillon. Chapter II. 1907